REMARKS

Reconsideration and allowance of this application are respectfully requested.

Claims 1-9, 13-17 and 21 stand rejected as obvious over Fishman (U.S. Patent No. 6,112,133) in view of Kahn et al. (U.S. Patent No. 4,866,635). Claims 10-12 and 18-20 stand rejected as obvious over Fishman in view of Cameron et al. (U.S. Patent No. 5,412,583).

In the Response filed July 14, 2003, an Affidavit under Rule 131 was filed to demonstrate invention by the inventors prior to the critical date of Fishman. The affidavit was deemed ineffective for several reasons. First, the Office Action requests additional information concerning mapping of the limitations of the claims onto the evidence of conception in the 131 Affidavit filed on July 14, 2003. Second, the Office Action requests additional information concerning diligence from before the critical date of Fishman to the inventors' reduction to practice. Third, the Office Action erroneously suggests that inventor Suzuki did not sign the Affidavit.

The Applicants hereby demonstrate, based on the Rule 131 Affidavit filed July 14, 2003 and the supplemental materials provided herein, that the invention claimed in at least present claims 1-4, and 7-12 was conceived prior to October 8, 1997. Conception of limitations recited in such claims is demonstrated by the tables and flowcharts contained in Exhibit B, which is filed as 131 Affidavit on July 14, 2003 and supplied herewith for the Examiner's convenience. Exhibit B includes 4 Tables, of which Tables A-C are shown on page 1 and Table D on page 2 of the Exhibit B, and 4 Flowcharts A-D shown on pages 3-6 of Exhibit B. Below, limitations in these claims are individually mapped to corresponding flowcharts and tables in Exhibit B.

1. The Tables and Flowcharts shown in Exhibit B directly correspond to Figs. 4 to Fig. 11(b) in the present US application as well as the corresponding Japanese application. These Tables and Flowcharts support the following limitations of pending claim 1:

> an analyzing means for analyzing the variable values obtained during the execution of the basic program to determine the efficiency of the machining process; and

a notifying means for notifying the machinist an advisory message regarding how to improve the basic program to generate a final machining program that enables the machining process to perform at the highest speed allowed by the capacity of the machine based on the analysis performed by the analyzing means so that the final machining program is generated by improving the basic program according to the advisory message.

Although remaining limitations recited in claim 1 are also explicitly disclosed in Exhibit B, these remaining limitations are recited in the preamble of claim 1 and are not the main subject matter of this claim.

2. Table A describes conditions under which different advisory messages are displayed during a drilling machining process. Flowchart A describes a processing flow for a drill tool. Flowchart A corresponds directly to Fig. 4 in the present application, showing a procedure for analyzing the machining variable values obtained during the execution of a basic program to determine the efficiency of the machining process and for reporting. As indicated on the upper left corner of the flowchart, the procedure illustrated in Flowchart A is applied to a drilling machining process. The processing described in Fig. 4 (and in Flowchart A) is consistent with the conditions prescribed in Table A. Based on the analysis, an advisory message is determined, which is used for notification of the machinist. In the procedure shown in Flowchart A, the spindle load and the cutting speed, which are machining variable values as recited in claims 7 and 8, are analyzed. Specifically, each of the spindle load and the cutting speed is compared with a corresponding criterion (SF, WJ, as described in Table A) to determine whether or not the machining efficiency can be improved. This feature is recited in claim 2. If the machining efficiency can be improved, an advisory message is displayed. This feature is also recited in claim 2. As shown in Flowchart A, depending on the cutting speed, an appropriate advisory message, designated as either navigation information number 1 or 2, is displayed.

3. Table D in Exhibit B, which corresponds to Fig. 8 of the present application, shows various optional and numbered (in left column of Table D) advisory messages. The advisory message designated as number 1 indicates that the cutting speed may be increased to the limit value (see claim 10). Hence, when this message is displayed, the machinist is notified that the cutting speed may be increased without changing the cutting tool, and can improve the basic

program to generate the final machining program that enables the machining process to perform at the highest speed allowed by the capacity of the machine (see claim 1).

The advisory message designated as number 2 advises the machinist to change the cutting tool material so that the cutting speed can be increased (see claim 11). Thus, the machinist can improve the cutting speed by changing the cutting tool material.

4. The processing procedure described in Flowchart B in Exhibit B, corresponds to Fig. 5 of the present application, which is executed when the cutting tool is an end mill and the processing is performed according to conditions prescribed in Table B. In the procedure shown in Flowchart B, the spindle load, the cutting speed and the spindle rotating speed, which are machining variable values as recited in claims 7 to 9, are analyzed, and an advisory message designated as number 3 or 4 is selected under different conditions according to Table B. As shown in Table D in Exhibit B, the advisory message designated as number 3 advises the machinist to increase the cutting speed to the limit value (see claim 10), and the advisory message designated as number 4 advises the machinist to change the cutting tool material so that the cutting speed can be increased (see claim 11).

5. The processing procedure described in Flowchart C in Exhibit B, which corresponds to Fig. 6 of the present application, is executed when the cutting tool is a face mill. The processing is performed according to conditions prescribed in Table C of Exhibit B. In the procedure shown in Flowchart C, the spindle load, the cutting speed and the spindle rotating speed, which are machining variable values as recited in claims 7 to 9, are analyzed, and an advisory message designated as number 5, 6 or 7 is selected according to conditions stated in Table C. As shown in Table D in Exhibit B, the advisory message designated as number 5 advises the machinist to increase the cutting speed to the limit value (see claim 10), the advisory message designated as number 6 advises the machinist to change the cutting tool material so that the cutting speed can be increased (see claim 11), and the advisory message designated as number 7 advises the machinist to decrease the tool diameter so that the spindle rotating speed can be increased (see claim 12).

6. The processing procedure described in Flowchart D of Exhibit B, which corresponds to Fig. 7 of the present application, is executed when the cutting tool is an end mill or a face mill

that are used for finish machining. Similar to flowcharts A to C, Flowchart D also shows a procedure for analyzing the machining variable values obtained during the execution of the basic program to determine the efficiency of the machining process.

7. Flowcharts A to D in Exhibit B also describe that an advisory message is displayed. This naturally imply that a display device is used to display an advisory message. Thus, Exhibit B substantially discloses the limitation recited in claim 3.

8. Although Exhibit B does not explicitly describe a navigation information memory, it is reasonably expected that various advisory messages to be used for display purposes by different processing procedures (e.g., Flowchart A-D) are stored in a memory. Thus, Exhibit B substantially discloses the limitation of claim 4.

9. Although Exhibit B does not explicitly mention a simulation program, it is obvious to a skilled person in the art that the basic program can be executed using a simulation program, as claimed in claim 6.

10. As indicated above, Exhibit B discloses the limitations of pending claims 1-4 and 7-12. Claims 13-21 recite similar limitations or a combination thereof. Therefore, Exhibit B discloses the limitations of pending claims 1-4, 7-12, and 13-21.

The Examiner rejected the Applicant's Declaration under 37 CFR §1.131, as lack of a showing of diligence from a date prior to the date of reduction to practice of Fishman and the date of either a constructive reduction to practice or an actual reduction to practice. To show diligence from a date prior to Fishman's U.S. Filing date (February 27, 1998) to the filing date of the corresponding Japanese Patent application filing date (March 24, 1998), the Applicants respectfully provide herewith supplemental Exhibit 1-4, with evidence of diligence from a date before Fishman's U.S. filing date to the date of constructive reduction to practice of the present application.

1. Exhibit 1 is a true copy of a letter in Japanese sent from Mazak to a Japanese patent firm on December 16, 1997. Exhibit 2 is a copy of an English translation of the letter shown in Exhibit 1. In this letter, Mazak formally asked the Japanese patent firm on December 16, 1997

to prepare a Japanese patent application corresponding to a designated matter number H09-033 pertaining to the subject matter disclosed and claimed in the present US application.

2. Exhibit 3 is a true copy of a letter in Japanese, which was issued by Engineering Administration Department of Mazak on March 9, 1998. Exhibit 4 is a copy of an English translation of the letter shown in Exhibit 3. This letter indicates that a draft specification under the same matter number H09-033 (as shown on low left part of Exhibit 3), which had been revised prior to March 9, 1998, by the Japanese patent firm in accordance with comments provided by Mazak, was sent again from the Japanese patent firm to Mazak on or before March 9, 1998 for another review. That is, the Engineering Administration Department of Mazak received the revised draft from the Japanese patent firm on or before March 9, 1998, and then delivered, on various indicated dates, the revised draft to Mazak's four inventors together with the letter of Exhibit 3 on or after March 9, 1998. As can be readily seen from the letter, the Japanese patent firm provided at least two drafts pertaining to the claimed invention to Mazak from the date of December 16, 1997 to the date of March 9, 1998. In the letter, it is also indicated that a deadline for review (checking) is March 20, 1998 (last line in Exhibit 4). After at least two drafts were reviewed (or checked) by Mazak's four inventors, the application was filed with the Japanese patent office on March 24, 1998. There is no draft of the application, and no letters of correspondence between the Japanese patent firm and Mazak that we are aware of, other than those attached to this letter.

3. Given that the specification of the application is relatively complicated and of a great length, drafting a patent application for the claimed invention took a considerable amount of time. In addition, having intermediate drafts reviewed by four inventors more than once and revised according to the inventors comments also requires substantial amount of time. Furthermore, having four inventors work together with the Japanese patent firm on initial drafting, reviewing, revising, completion, and eventually filing of the application, all within a short approximately three month period, demonstrates diligence. Therefore, we believe that the affidavit filed on July 14, 2003 and the supplmental materials provided herewith (Exhibits 1- 4) sufficiently demonstrate diligence during the period from December 16, 1997, when Mazak formally requested the Japanese patent firm to prepare the application, to March 24, 1998, when the application was filed with the Japanese Patent Office.

The Office Action also suggests that inventor Suzuki did not sign the Affidavit. As stated in the July 14, 2003 Response, the Affidavit was signed in two parts, both of which were filed on July 14, 2003. Attached hereto is a copy of the Affidavit signed by Mr. Suzuki. This Affidavit was also filed on July 14, 2003.

Claims 1, 13 and 21 stand rejected over Yamazaki et al. (U.S. Patent No. 6,401,004) in view of Cameron et al. It is respectfully suggested that Yamazaki et al. is not prior art to this application.

As noted in the July 14, 2003 Response, the 102(e) date of the Yamazaki U.S. patent (July 2, 1998) or even the publication date of Yamazaki's base PCT application (May 14, 1998) is later than the March 24, 1998 priority date of this application. Note the translation of the Japanese priority application filed with the July 14, 2003 Response. The priority application supports the claims of this application.

During a telephone conversation with the Examiner between representatives of the Applicants and the Examiner, conducted on October 22, 2003, the representatives of the Applicants and the Examiner agreed that the Examiner's rejection based on Yamazaki et al. is incorrect because the 102(e) date of Yamazaki et al. is July 2, 1998, which is after the March 24, 1998 priority date of this application. Hence, Yamazaki et al. does not qualify as prior art reference.

In view of the above, the rejections of Claims 1-21 based on either Fishman or Yamazaki are moot, and withdrawal of the outstanding rejections is respectfully requested. If there are any questions, please contact the undersigned attorney for applicant.

Respectfully submitted,

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Attachments:
Exhibits B, 1-4